RION TECH
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V1.2

HIGH ACCURACY DYNAMIC 3D DIGITAL COMPASS

RION DDM350B&360B

Technical Manual

PRODUCTION EXECUTION STANDARD REFERENCE

○Enterprise quality system standard: ISO9001:2015 standard (Certification No.: 128101)

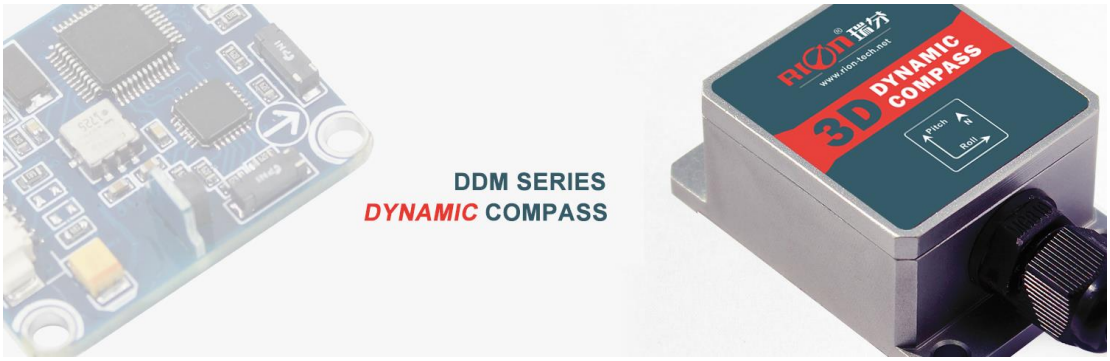
○High-tech Enterprise (Certificate No.: GR201844204379)

○Chinese National Intellectual Property Appearance Patent (Patent No.: ZL 201830752874.1)

○Revision date: 2021-5-22

Note: Product functions, parameters, appearance, etc. will be adjusted as technology upgrades. Please contact our pre-sales to confirm before purchasing.

DDM350B&DDM360B HIGH ACCURACY DYNAMIC 3D DIGITAL COMPASS



▶ PRODUCT DESCRIPTION

DDM350B&360B is a three-dimensional dynamic electronic compass, which integrates a 9-axis inertial measurement unit, including a three-axis accelerometer, a three-axis gyroscope, and a three-axis fluxga te. Utilizing the high dynamic angle characteristics of the gyroscope and the highly stable attitude charac teristics of the accelerometer, the pitch and roll angles that follow the complex attitude changes are obtai ned through the dynamic inertial navigation algorithm. The geomagnetic azimuth angle adopts hard mag netic and soft magnetic calibration algorithms, so that the compass can eliminate the influence of the ma gnetic field through the calibration algorithm even in the environment with magnetic field interference. Th e heading is calculated in real time by the central processor, and the dynamic pitch and roll angles are u sed for dynamic heading compensation for a wide range of magnetic azimuths, ensuring that the compa ss can provide high-precision heading data even at tilt angles of up to ±85°. The electronic compass inte grates a high-level DSP arithmetic processor with diversified output modes. The standard interfaces incl ude RS232/RS485/TTL and other interfaces, and other communication interfaces can be customized. DDM350B&360B is small and low power consumpting. It can be used in marine vessels, antennas and s atellites, commercial drones, and many other high-vibration, extremely harsh environments. It is more su itable for today's various high-precision measurement integrated control systems.

▶ MAIN FEATURES

★ Inclination angle measurement range: pitch ±85°, roll angle +/-180°
★ With hard magnetic, soft magnetic and tilt angle compensation
★ Standard RS232/RS485/TTL output interface
★ Azimuth angle accuracy: 0.8°
★ Inclination resolution: 0.1°
★ Inclination accuracy: 0.2°
★ Wide temp. range: -40℃～+85℃
★ Dimesion: L55×W37×H24mm
★ DC 5V power supply
★ IP67 waterproof rating

▶ APPLICATION

★ Satellite antenna search
★ Marine surveying and mapping
★ GPS integrated navigation
★ Antenna servo control
★ Unmanned aerial vehicle
★ Infrared imager
★ Laser rangefinder
★ ROV underwater robot navigation
★ Special occasion robot
★ Oceanographic surveying instrument

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▶ PERFORMANCE

DDM350B&360B		Parameter
Compass heading	Heading accuracy（RMS）	0.8° tilt<10°
		1.5° tilt <30°
		2.0° tilt <40°
		3.0° tilt <60°
	Resolution	0.1°
	Pitch range	±90°
	Roll range	±180°
	Inclination accuracy（RMS）	Static state 0.2°
		Dynamic 0.5°
	Resolution	0.1°
	Tilt compensation angle range	Roll ±180°
		Pitch ＜85°
Calibration	Hard iron calibration	yes
	Soft iron calibration	yes
	Magnetic field interference calibration method	One rotation of the plane (two-dimensional calibration)
Physical feature	Size	L55×W37×H24mm
	RS232/RS485/TTL	4 cores 1-meter direct lead cable
Interface	Startup delay	<50ms
	Output rate	20Hz/s
	Baud rate	2400 to 115200baud
	Output format	Binary high performance protocol
Power	Supply voltage	(Default) DC +5V
		(Customized) DC 9～36V
	Current (MAX)	45mA
	Ideal model	35mA
	Sleep mode	TBD
Environment	Operating range	-40℃～+85℃
	Storage temperature	-40℃～+100℃
	Vibration resistance	2500g
EMC	According to EN61000 and GBT17626	
MTBF	≥40000 hours/time	
Insulation resistance	≥100 megohm	
Impact resistance	100g@11ms、3 Axial Direction (Half Sinusoid)	
Anti-vibration	10grms、10～1000Hz	
Weight	90g(exclude cable)	

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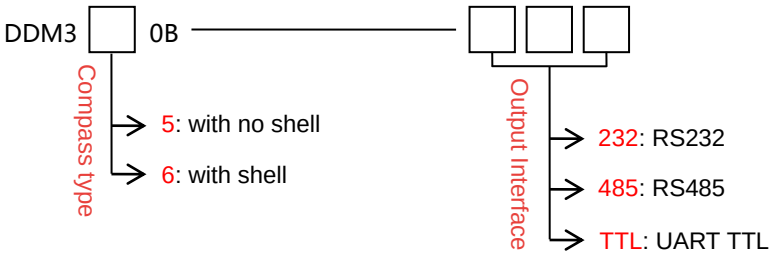
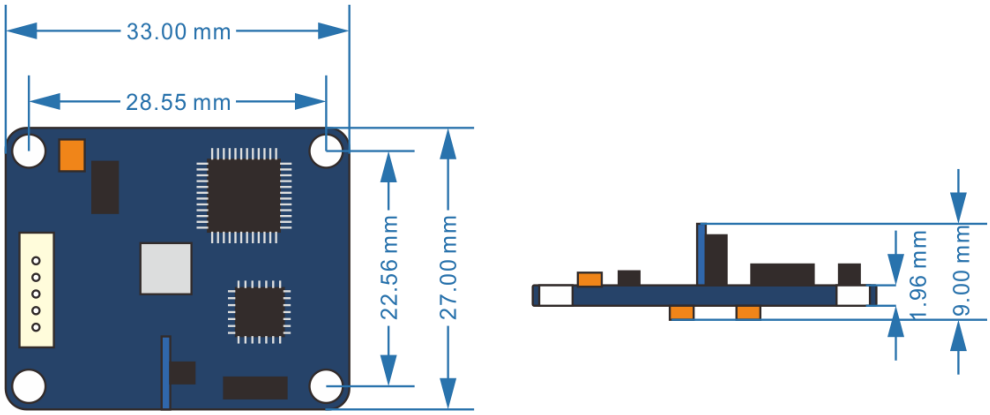
▶ ORDER OPTIONS



Eg. : DDM360B-232： 3D compass with shell, RS232 output

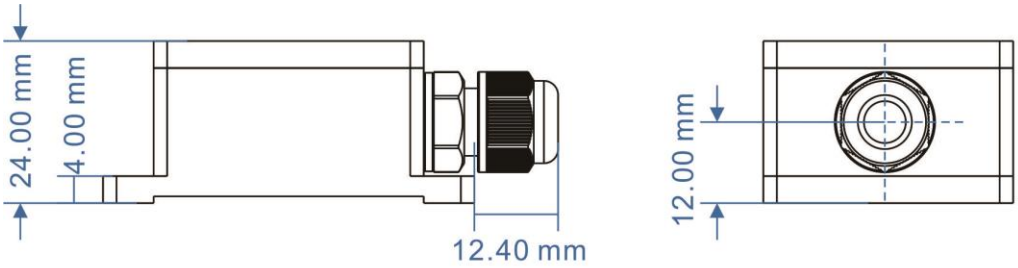
▶ PRODUCT SIZE

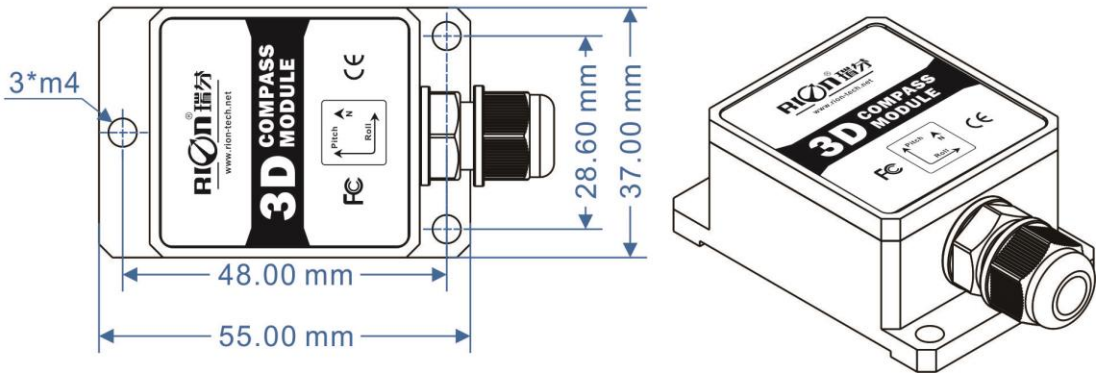
PCBA SIZE



SIZE:33*27*9mm

SHELL SIZE





SIZE:55*37*24mm